Model RF-OMS	Radio Frequency Oil Management System	Instruction Manual

BadgerMeter,Inc.

IOM-087-01

11-02

RF Oil Management System

INSTRUCTION MANUAL

November 2002

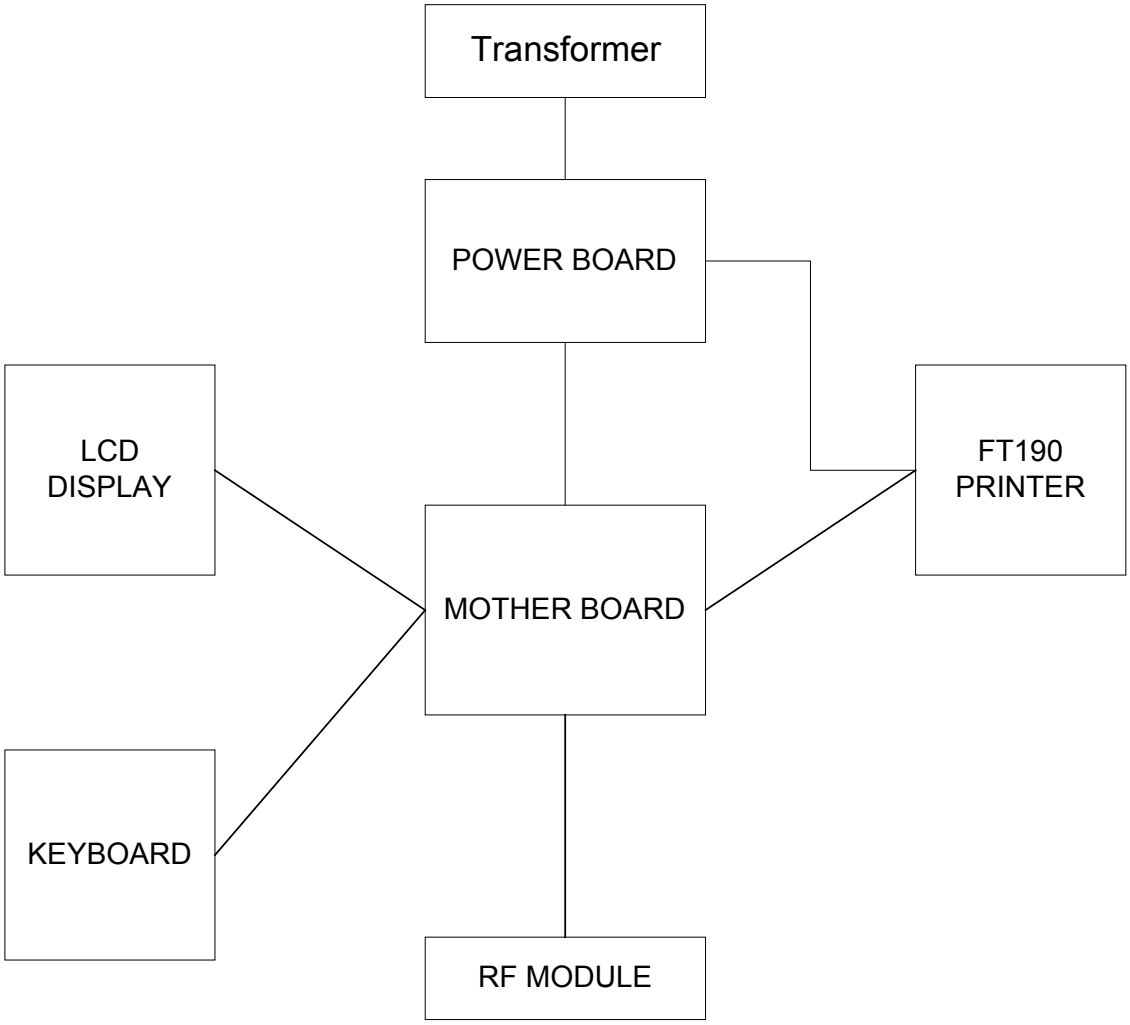
Version 1.0

1. General Description

1.1 Technical Data

CPU:	Texas Instrument, MSP430, 8-bit, Serial Flash, 48k bytes of In-system Programmable Flash
Programming:	With Adapter
Interfaces:	1 x serial, printer 9600/n/8, code line LF/CF
RF Communications:	2-way 902-928MHz Frequency Hopping Spread Spectrum Per FCC Part 15.247 Part 15.109
Operating Temperature:	-10°C to +60°C

NOTE: ANY CHANGES MADE BY THE USER NOT APPROVED BY BADGER METER MAY VOID THE USER'S AUTHORITY UNDER FCC REGULATIONS TO OPERATE THE EQUIPMENT.



1.2 Keypad Description

FCC ID: GIF-RFKEYPAD
FCC CERTIFIED, PART 15, SUBPART C

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Keyboard Description

Scroll Key: Used to select option on display

Home Key: Pressing this key will return display to the PIN Number and Time/Date screens

Backspace Key: Used to backspace when entering data

Enter Key: Used to enter data and move to next screens

Space Key: Used to enter a space character when entering data

1 ABC - 9 YZ Alphanumeric Keys: Used to enter data on display. Hold down key until the desired character is on display. Then release the key.

Programming and Use

2.1 Default Screens:

- The Personal Identification Number (PIN) number is 4 numeric digits
- 1 supervisor account
- Maximum 50 operators account
- The supervisor account has access to the management process (initialization, configuration, communication and report)
- The operator account only has access to the dispense order process

```
17mar2002        22:32
Version 1.0
```

There is no active key: Active keys are the keys that will produce a result for a given screen.
This screen is displayed for user information
It is displayed during 1 seconds every 5 seconds. The 4 other seconds are reserved Enter Pin No. Screen.

```
Enter Pin No.
****
```

Active keys:

Numeric keys, ,

2.2 Supervisor

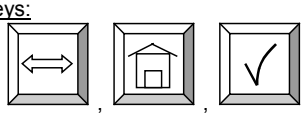
Enter Supervisor PIN Number

4 Numeric digits: default is 0000 at initial power-up

Management Menu: The management menu displays after entering the supervisor PIN Number

Select
INI CNF MET REP

Active keys:

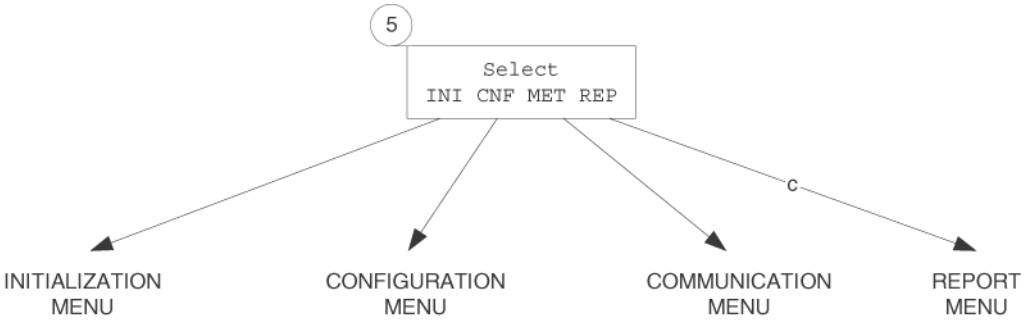


Action:

- Choose which option you need

Screens in INI are accessed only when the Dispense Order list is empty. If the supervisor wants to change one of these parameters whereas the list is not empty, a screen message will be displayed. The supervisor must clear all transaction records through the CNF menu prior to entering the INI (initialization) menu.

For screens with multiple choices, the selection is in inverse video. (i.e. The selection is green on black.)



The scroll key is used to select an answer (Example Yes – No). The selection is in inverse video, it is validated with the ENTER key.

To go to the desired menu, move the scroll key to your choice and press the ENTER key

2.2.1 Initialization Menu Screens (INI)

- System date and time are initially blank
- System time is in military standard
- System date is in format DD/MMM/YYYY (in English)
- To change month

Enter Time:

```
Enter Time
--:--
```

Active keys:

Numeric keys, , ,

Action:

- Enter key with no entry → Jumps to TANK UNIT screen
- If the time/date are already entered into the system, press enter with no date to move to the next screens.

Enter time by using the numeric keys to set a 24-hour military time of day.

Press when finished to move to the next initialization screen.

- Enter Date:

```
Enter Date
--/jan/----
```

Active keys:

Numeric keys, , , ,

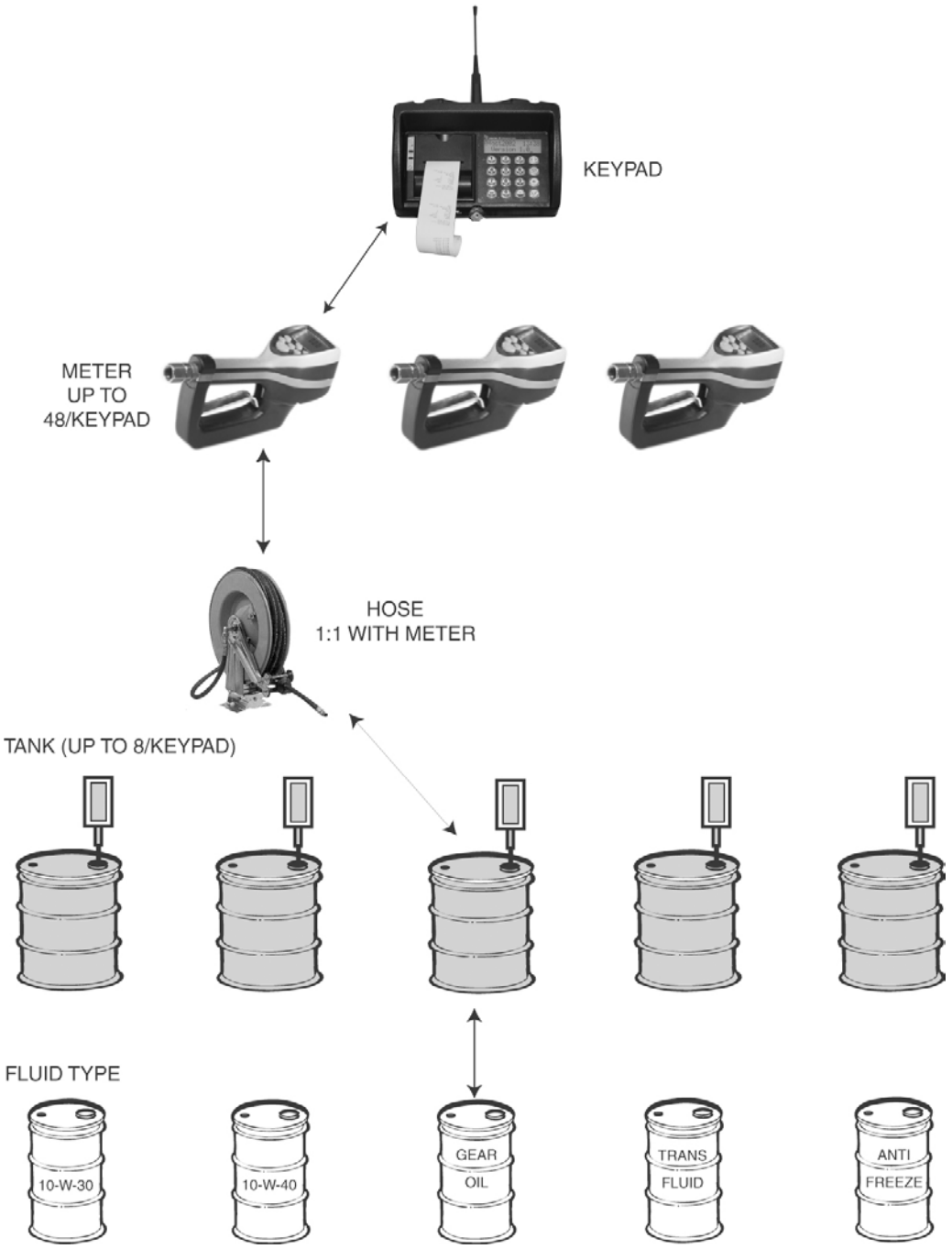
Action: Date is changed and tank unit screen is displayed.

Alphanumeric keys are validated only for some of the display menus. In these menus to enter a letter just hold the related key and the letters scroll. Then release the key when the letter you want is displayed.

Enter date by first entering the two digit day of the month. The cursor will automatically jump to the month. Use to select month, then enter a four-digit year.

After date is set, press to move to the next initialization screen.

PICTORAL DIAGRAM OF RF – OMS LOGICAL SET-UP



Steps:

1. Identify and Name Fluid Types
2. Identify and Name Fluid Tanks
3. Associate Fluid Type to Tank Number
4. Identify and Name Hose Reel
5. Identify and Name Meter
6. Associate Tank to Hose
7. Associate Meter to Keypad

(NOTE: Hose and Meter are synonymous.)

Tank Initialization:

The tank screens are used to set up the tanks in the system. Each tank is assigned a number and a starting quantity level in the desired unit of measure. The following is the process for installing a tank:

- Maximum 8 Tanks
- The tank id ranges from 1 to 8
- By default, the unit type is liters
- Unit type can be quarts, liters, pints or gallons
- The tank quantity setting is updated after each dispense from the associated tank.
- The quantity setting is Format 5.3 digits (99999.999)
- The tank quantity will be printed out to the nearest whole number after each dispense on the ticket.
- The Supervisor may update the quantity setting at any time by entering these screens to change levels

Tank Unit
Tank No -

Active keys:

Numeric keys, , ,

Action:

- Enter key with no entry jumps to Fluids Screens

Enter a numeric value from 1 to 8 and press

Tank Unit
LITERS

Active keys:

Numeric keys, , , ,

Use to select between LITERS, QUARTS, PINTS, GALLONS and REMOVE.

Press to move to the next screen.

Tank Stock Level
No X: ---------

Active keys

Numeric keys, ⇦ , 🏠 , ✓

Use the numeric keys to enter a stock level from 00000.000 to 99999.999.

Press ✓ to move to next screen.

Fluid Initialization:

This screen is used to set initial stock level or when ever supplier delivers AFP. The fluid screens allow the supervisor to set the fluid names used in the system. The parameters are:

- Maximum 8 Fluid types
- The fluid type id ranges from 1 to 8
- The fluid type name is a 16 alphanumeric string
- Initially, the fluid type name is blank

```
Select Fluid
No -
```

Active keys:

Numeric keys, ⇦ , 🏠 , ✓

Action:

- Enter key with no entry → moves to Tank/Fluid relationship screen

```
Fluid No. 1
----------------
```

Active keys:

Alphanumeric keys, ⇦ , 🏠 , ✓

Tank-Fluid Relationship Screens:

The relationship between tank id and fluid type id will be 1:1 (one tank assigned to one fluid type id). For example, the supervisor may associate tank #1 with fluid #1 or tank #1 with fluid #2. Each tank must be associated with one and only one fluid type.

Tank-Fluid
Tank No -

Active keys:

Numeric keys, , ,

Action:

- Enter key with no entry → moves to Create Hose screens

Tank-Fluid
Fluid No -

Active keys:

Numeric keys, , ,

The user must enter a valid number for a fluid in the system. Pressing enter after a valid fluid number will bring the Tank-Fluid Tank No screen.

Creating and Deleting RF Meters: (Meter and Hose are synonymous)

This set of screens allows the Supervisor to create or delete RF Meters from the system.

- The RF Meter number can be found on the RF Meter under the battery pack
- The RF Meter address format is 10 decimal digits (-.---.---.---)
- The RF Meters can be created and deleted
- Maximum 48 RF Meters
- A given keypad can exchange data only with RF Meters whose address is in this list.
- All RF Meters addresses and ids are unique
- The relationship between tank and RF Meter will be 1:n (one tank assigned to n RF Meters). Since there will be a relationship between tank and fluid type, the RF Meter will be assigned to one fluid type.
- Initially the RF Meter address list is empty

Create Hose
-.---.---.---

Active keys:

Numeric keys, , ,

Action:

- After validate RF Meter address is entered the tank-hose screen is displayed
- Enter key with no entry → moves to Delete Hose screen
- If RF Meter address already used Hose Address Already Used Screen is displayed

Hose Address
Already Used

Active keys:

There is no active key.
This screen is displayed if another RF Meter already uses the last three number of the RF Meter.
If this screen displays check RF Meters in system to make some duplicate RF Meters do not exist, then check to see if this RF Meter has already been created in the system.
It is displayed for 3 seconds and it comes back to create hose screen.

No Action

The relationship between tank and RF Meter will be 1:n (one tank assigned to n meters). Since there will be a relationship between tank and fluid type, the RF Meter will be assigned to one fluid type. Assign the RF Meter to the tank in which it is connected.

Tank-Hose
Tank No -

Active keys:

Numeric keys, , ,

Action: Create hose screen is displayed

The supervisor has the option to delete a hose/RF Meter through this screen. This is necessary when there is a change to the system; whereby, a RF Meter needs replacement for any reason.

The supervisor should delete from the keypad the removed RF Meter prior to creating the new RF Meter. This will put the new RF Meter in the same logical position with the keypad and the dispense order process will remain the same.

Delete Hose
-.---.---.---

Active keys:

Numeric keys, , ,

Action:

- If a RF Meter is deleted, the Delete Hose screen is displayed
- Enter key with no entry → Create Operator screen is displayed

Creating and Deleting Operators:

- Only valid Operator PIN can dispense AFP's
- Maximum 50 operators may be created
- The operator id format is 4 numeric digits
- The operator name format is 16 alphanumeric digits
- Initially, the operator list is empty

New operator

Active keys:

Numeric keys, , ,

Action:

- If a new operator has been created, the Operator name screen is displayed
- Enter key with no entry → Delete Operator screen is displayed

Operator XXXX

Active keys:

Alphanumeric keys, , ,

Action: The New operator screen is displayed

Delete an operator by entering the four-digit id number for the operator to be deleted.

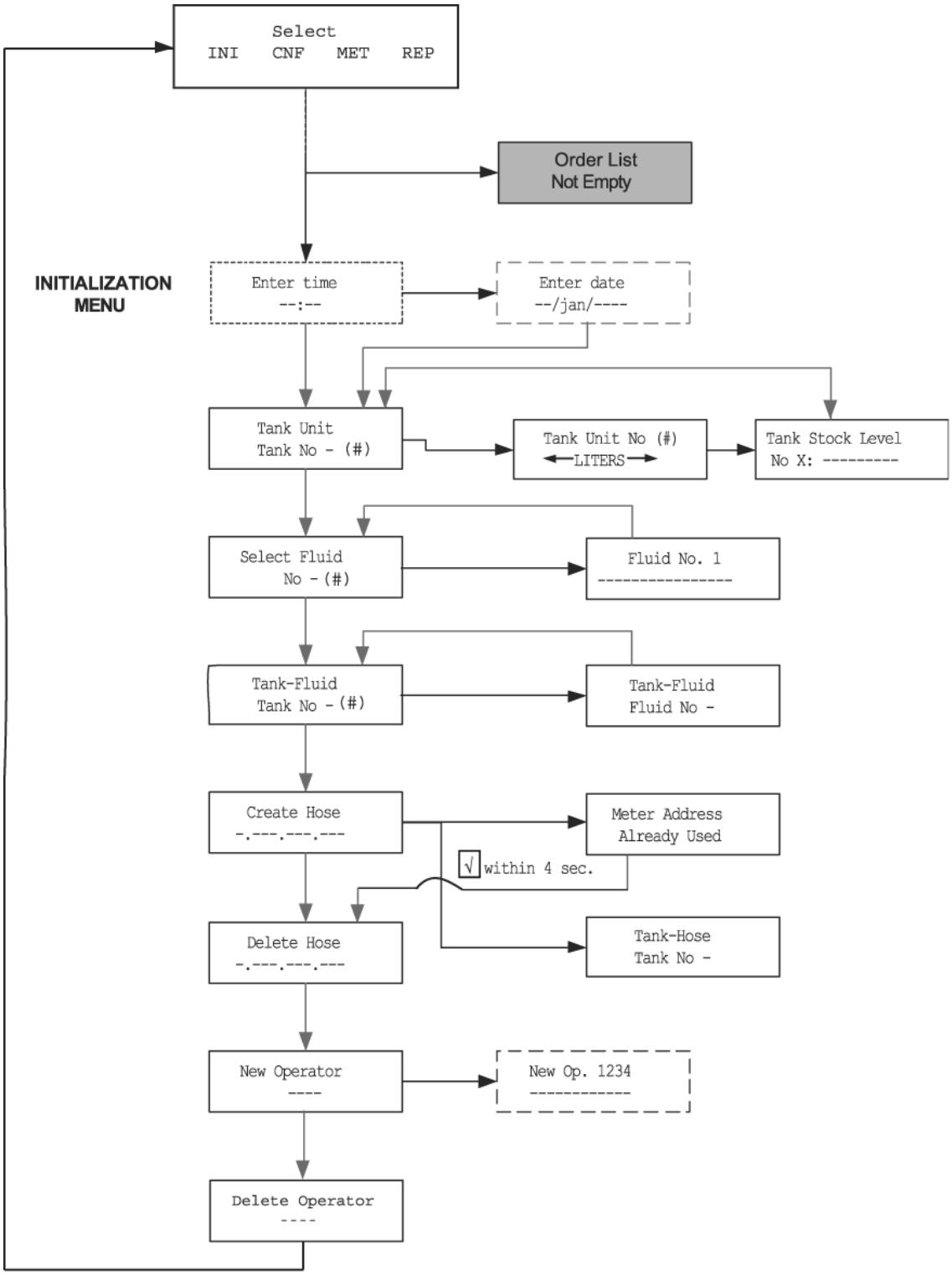
Delete operator

Active keys:

Numeric keys, , ,

Initialization Menu: Flow Chart

- The parameter changes will affect all data in memory (example: if we change the quantity unit from liters to gallons, the general quantity will be simply switched from liters to gallons (no conversion from the previous quantity unit to the new quantity unit)
- No pending dispense order



Configuration Menu:

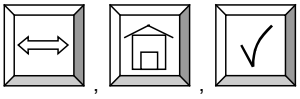
The Configuration Menu allows the supervisor to set-up all parameters for the Keypad. The Supervisor is the only user with access to these screens.

Clearing Transactions from Keypad Memory:

- Removes all transactions (Dispense Order) previously recorded in memory
- After an erase memory, it will not be possible to print them out further

Clear Transacts
YES / NO

Active keys:
The selection is in reverse video



Use the scroll key to select between YES/NO.

Action:

- If yes, the keypad automatically prints all transactions stored in the system if an external printer is attached to the keypad. If no printer is attached the user will be asked to confirm the clear.
- If no, keypad will display the System Reset screen.

Print WO

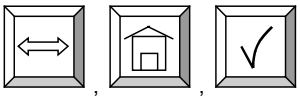
No Active keys:

Action:

- Displayed during the printing

Confirm Clear
YES / NO

Active keys:
The selection is in reverse video



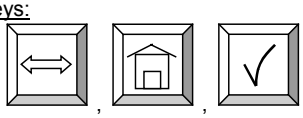
Action: The keypad will automatically return to the Clear Transacts screen on YES or NO confirmation

System Reset:

Allows the user to reset all the configuration parameters to default values:

System Reset
YES / NO

Active keys:

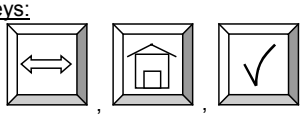


Action:

- If yes, the keypad asks the user to confirm
- If no, the keypad displays the mileage type screen

Confirm Reset
YES / NO

Active keys:



Action: The keypad returns to the System Reset screen

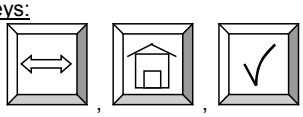
Mileage Type:

Allows the user to select how mileage is stored in the keypad

- KM/MILES
- The mileage type by default is KM.
- The mileage type is set for all RF Meters in the keypad

Mileage Type
KM / MILES

Active keys:



Action:

- Press enter key to move to Mileage Info screen

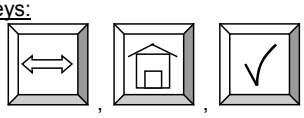
Mileage and Registration Information Option:

Allows the supervisor to select the storage of vehicle mileage and registration information for each dispense order.

- YES/NO to the option of entering the vehicle mileage information for each dispense order
- Mileage information by default is NO

Mileage Info
YES / NO

Active keys:



Action: Use the scroll key to select YES/NO, press enter key to move to the Registration option screen

- YES/NO to the option of entering the vehicle registration information for each dispense order
- Registration information by default is NO

Regist. Info
YES / NO

Active keys:

Action: Use the scroll key to select YES/NO, press enter key to move to the keypad timeout screen

Keypad Timeout Option:

- Timeout parameter corresponding to the time it takes to validate after all dispense order data has been entered. If the enter button is not pressed within the time allocated, the keypad display goes back to the initial menu, and the input data is erased.
- The keypad timeout is between 0 to 255 seconds (0 no timeout) and the default for this feature is **10** seconds

Keypad Timeout
10-

Active keys:

Numeric keys, , ,

Action:

- Press Enter key to move to Hose Inactive Timeout Option

Hose Inactive Timeout Option:

- Essentially, this is the time the user has to top-off the dispense and completing the automatic batch.
- Timeout parameter corresponding to the time that a RF Meter could stay inactive after an RF batch has been dispensed.
- If the user has not pressed reset on the RF Meter within the timeout period, the RF Meter will transmit the dispense order quantity to the keypad and lockout the RF Meter.
- Meter inactive timeout is sent to the RF meter. It's the meter (ER) that is responsible of tracking this timer.
- The meter inactive timeout is set for all RF Meters.
- The meter inactive timeout is between 0 to 65534 seconds (0 = no timeout) and the default value is 10 minutes.

Hose Inactive
600

Active keys:

Numeric keys, , ,

Action:

- Press Enter key to move to Display Timeout Option

Display Timeout Option: (Not a parameter to change in configuration)

- Timeout parameter corresponding to the time for displaying an information on the keypad LCD before it is refreshed with new information
- The display timeout is set at 2 seconds

Display Timeout
2--

Active keys:

Numeric keys, , ,

Action:

- Press Enter key to move to Internal Printer Option

Internal Printer Option:

- YES / NO. Parameter indicating the existence of an internal printer (CUSTOM FT190).
- The integrated printer value is set by default NO (The keypad will not detect the existence of a printer)

Internal printer
YES / NO

Active keys:

, ,

Action:

- Press Enter key to move to External Printer Option

External Printer Option:

- YES / NO. Parameter indicating the existence of an external printer (EPSON LX300).
- The external printer value is set by default NO

External Printer
YES / NO

Active keys:

, ,

Action:

- Press Enter key to move to Supervisor Password Option

-

Supervisor Password Option:

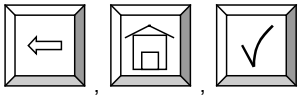
The default supervisor password for protecting the modification of the supervisor id is 0000.

It is recommended the Supervisor change this password during the initial set-up of the system.

Maximum 1 Supervisor login

Super new pass
****

Active keys:

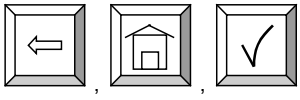
Numeric keys, 

Action:

- Use numeric keys to enter the new password then press enter.
- Enter key with no entry → No change to password and displays buzzer option.

Super Confirm

Active keys:

Numeric keys, 

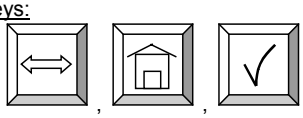
Action: reenter new password to confirm.

Buzzer Option:

This screen provides the user with the option to have a beep on every key entry. The default is YES.

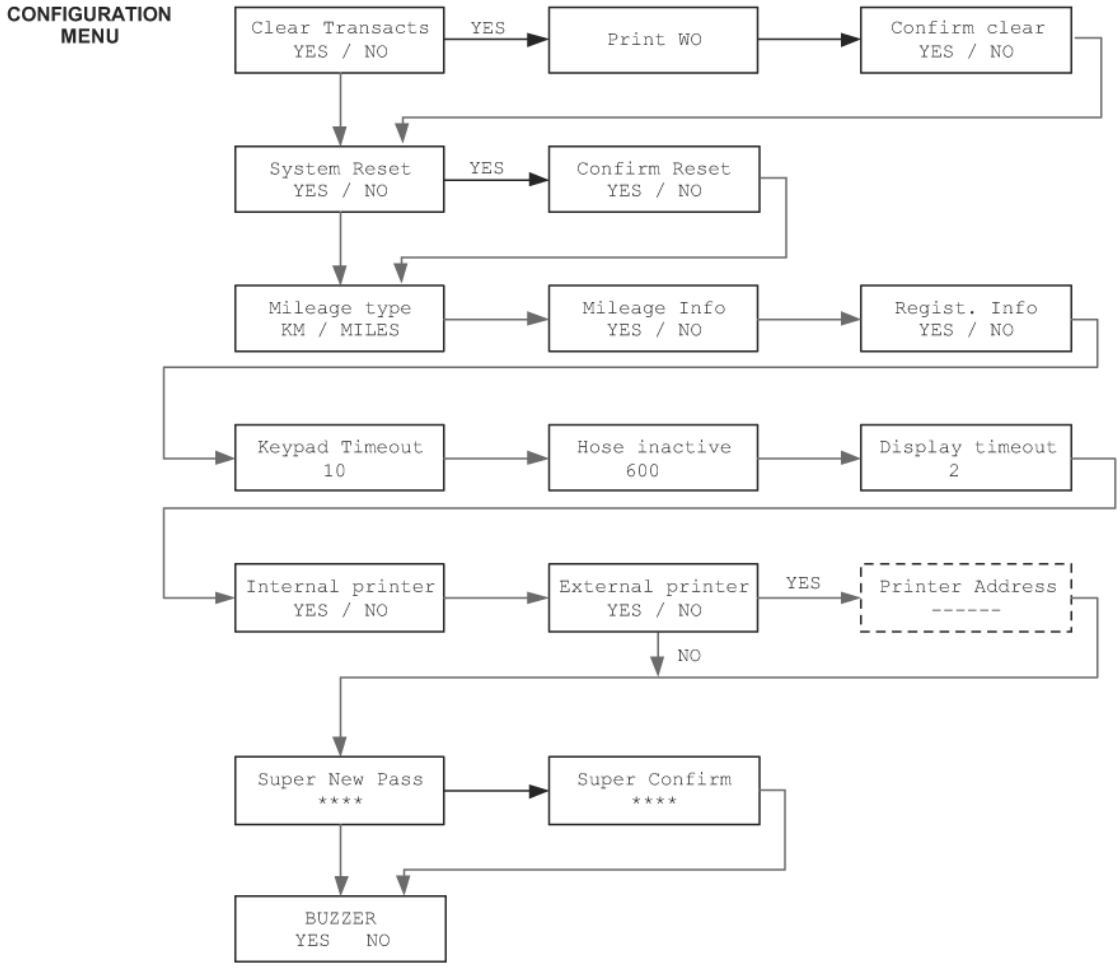
Buzzer
YES / NO

Active keys:



Action: Select YES or NO by using the scroll key, then press Enter. The keypad will display the Supervisor Menu.

Configuration Menu Flowchart:

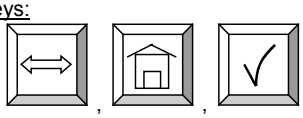


2.2.2 MET Menu:

- Only the supervisor has access to this process.
- The supervisor may delete a dispense order keypad que for a single hose or all hoses in the system.
- If the supervisor selects all RF Meters, all dispense orders in the que will be deleted and all meters may be programmed for a dispense order.
- The communication test could be done only with the RF Meters entered in the initialization menu

Init all Hose
YES / NO

Active keys:



Action:

- If YES → Start (Hoses Init) is displayed
- If NO → User is prompted for a hose number for communications test

Start Hoses Init
Press enter

RF Communications Menu Flowchart:

2.2.3 Report Menu Screens:

The supervisor has the opportunity to print out a variety of reports, if there is an external printer connected to the keypad.

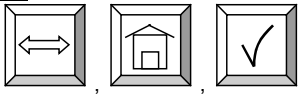
INI: Prints all parameters associated with the system initialization
CNF: Prints all parameters selected for the configuration of the keypad
MET: Prints the status of all hoses/meters
REP: Prints the dispense order history

The external printer has to be activated and connected.
- When the keypad is printing out a report or a receipt, the keypad keyboard will be locked for all new data entry (i.e. the operator will not be able to enter a new Dispense Order List while the keypad is printing).
- If the keypad detects an error on the integrated printer or the external printer (not connected, out of paper or off line), the keypad keyboard will be locked for all new data entry and an error will displayed on the keypad LCD. The user should check the printers for off-line or out of paper conditions.
- If an error is detected while printing, the keypad will not purge the memory (especially in the case of the Dispense Order List report)
- After printing out the Dispense Order List report, the Dispense Order list memory is erased automatically

The dispense order receipt is automatically (after a user prompt message) printed out after the RF reception of the dispense order result

Select Report
INI CNF MET WO

Active keys:



Action:

- Use the scroll key to select report option
- Enter key with no entry → keypad returns to Supervisor Menu screen

Initialization Report:

```
DD/MMM/YYYY INITIALIZATION REPORT  HH:MI

TNK PRODUCT          LEVEL UNT
=== ================ ===== ======
1   Fluid 1 name     99999 LITERS
2   Fluid 2 name     99999 LITERS
(…) (…)              (…)   (…)
7   Fluid 7 name     99999 LITERS
8   Fluid 8 name     99999 LITERS

ID  ADDR             TNK
=== ================ ===
123 124456           1
234 561444           2
(…) (…)              (…)

ID   PIN   NAME
===  ====  ================
1    1234  John SMITH
2    1235  Paul GREEN
3    1236  Mike BROWN
(…)  (…)   (…)

ID  PRODUCT
=== ================
1   Fluid 1 name
2   Fluid 2 name
(…) (…)
7   Fluid 7 name
8   Fluid 8 name
```

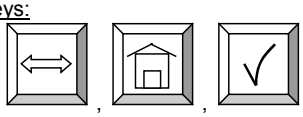
DD/MMM/YYYY	Date of the printout
HH:MI	Time of the printout
TNK	Tank No
PRODUCT	Fluid type name
QTY	Quantity dispensed
UNT	Unit
ADDR	Meter RF address
ID	RF Meter Id (Last 3 address characters)
TNK	Tank No
PIN	User pin number
NAME	User name

Configuration Report:

```
DD/MMM/YYYY CONFIGURATION REPORT  HH:MI

Mileage Type                    KM
Registration Info               NO
Mileage Info                    NO
Internal printer                Yes
External printer                Yes
Address printer
Buzzer                          Yes
Approved PTB                    NO
Supervisor pass                 1234
Hose Inactive                   600
Keypad Timeout                  10
Display Timeout                 2
On-Off sequence                999999
```

Select Report
INI CNF COM WO

Active keys:

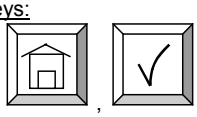


Action:

- Use scroll key to move to CNF and press Enter key
- Enter key with no entry → Supervisor Menu screen is displayed

Start
CNF Report

Active keys:



Action: After Report is completed the Select Report screen is displayed

Communications Report:

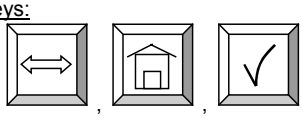
```
DD/MMM/YYYY COMMUNICATION REPORT  HH:MI

ADDR              ID      STA
======            ====    ===
0.000.000.101     1       inactive
0.000.000.137     2       inactive
0.000.000.111     3       inactive
0.000.000.126     4       inactive
0.000.000.127     5       inactive
0.000.000.109     6       inactive
0.000.000.100     7       inactive
0.000.000.135     8       inactive
```

DD/MMM/YYYY	Date of the printout
HH:MI	Time of the printout
ADDR	Meter RF address
ID	RF Meter Id (Last 3 address characters)
STA	Status of the RF link:

- OK ➔ RF link is established
- KO ➔ RF link not established
- ? ➔ RF link doubtful

Select Report
INI CNF COM WO

Active keys:

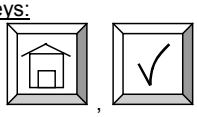


Action:

- Use scroll to move to COM and press Enter
- Enter key with no entry → Supervisor Menu screen is displayed

Start
COM report

Active keys:

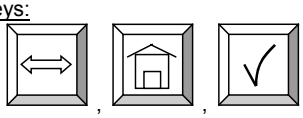


Action: After printing Select Report Menu is displayed

Dispense Order Reports

Select Report
INI CNF COM WO

Active keys:

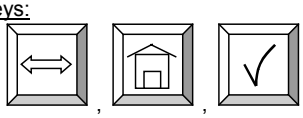


Action:

- Scroll to WO and press Enter key
- Enter key with no entry → Supervisor Menu screen is displayed

Select REP
USR PRO HOS TNK

Active keys:



Action: Scroll to report to print and press the Enter key

There are four reports that may be printed associated with Dispense Orders:

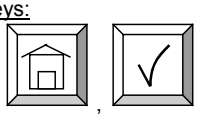
- USR: Print dispense orders by Operator
- PRO: Print dispense orders by Fluid Type
- HOS: Print dispense orders by Hose/Meter
- TNK: Print dispense orders by Tank

User Report (USR):

```
DD/MMM/YYYY STATISTICAL REPORT BY USER HH:MI

USER                PRODUCT             QTY
================ ================ =====
JOHN SMITH          FLUID TYPE 1      99999
                    FLUID TYPE 2      99999
                    FLUID TYPE 3      99999
                    FLUID TYPE 4      99999
PAUL GREEN          FLUID TYPE 5      99999
                    FLUID TYPE 6      99999
                    FLUID TYPE 7      99999
                    FLUID TYPE 8      99999
(…)
```

Start
Report

Active keys:



Action: After printing the Select Report Screen is displayed

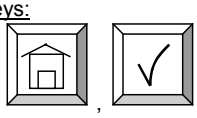
Product Report (PRO):

```
DD/MMM/YYYY STATISTICAL REPORT BY PRODUCT HH:MI
```

```
PRODUCT           USER              QTY
================= ================= =====
FLUID TYPE 1      JOHN SMITH        99999
                  PAUL GREEN        99999
FLUID TYPE 2      JOHN SMITH        99999
                  PAUL GREEN        99999
FLUID TYPE 3      JOHN SMITH        99999
                  PAUL GREEN        99999
(…)
```

Start Report

Active keys:



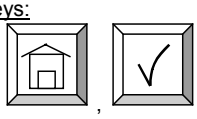
Action: After printing the Select Report Screen is displayed

Hose/Meter Report (HOS):

```
DD/MMM/YYYY STATISTICAL REPORT BY RF METER HH:MI

ADDR   ID  USER              QTY
====== === ================= =====
123456 456 JOHN SMITH        99999
           PAUL GREEN        99999
234561 561 JOHN SMITH        99999
           PAUL GREEN        99999
(…)
```

Start Report

Active keys:



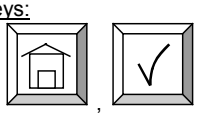
Action: After printing the Select Report Screen is displayed

Tank Report (TNK):

```
DD/MMM/YYYY STATISTICAL REPORT TANK LEVEL HH:MI

TNK PRODUCT           LEVEL UNT
=== ================ ===== =======
1   5W30 OIL           123 LITERS
2   GEAR OIL          1111 LITERS
3   ATF 111          11111 GALLONS
4   HYDRAULIC FLUID    232 QUARTS
5   10W40 OIL         3466 PINTS
6   WASHER FLUID         1 LITERS
7   5W40 OIL          2344 LITERS
8   BEER             43234 PINTS
```

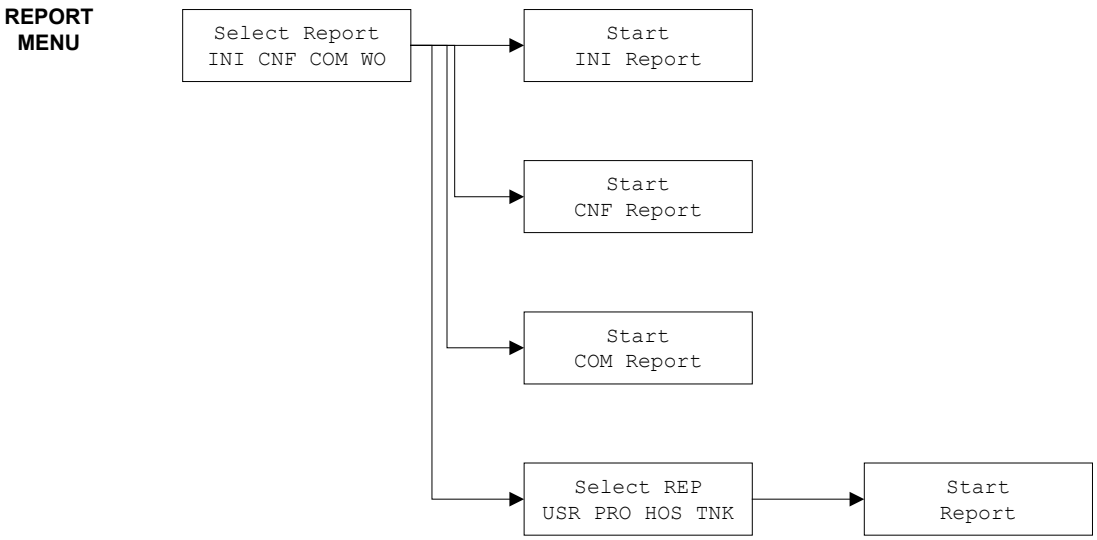
Start
Report

Active keys:



Action: After printing the Select Report Screen is displayed

Report Menu Flowchart



2.3 Operator:

The Operator only has access to the dispense order menus. At the main menu, enter one of the four-digit operator pin numbers.

- The pin number is 4 numeric characters
- Maximum 50 operators account
- The supervisor account has access to the management process
- The operator account has only access to the dispense order process

Dispense Order Process:

After a valid Operator pin number is entered, the following screens form the dispense order process:

Job No: Enter the job or work order number: This may be alphanumeric and up to 16 digits.

Enter Job No.

Active keys:

Alphanumeric keys, , ,

Action:

- Enter the 16-digit alphanumeric work order number and press Enter to move to next screen

The next two screens are only displayed if the settings for Registration and Mileage are set to YES in the Configuration Menu.

Registration Number: Enter the Registration or License Plate number of the vehicle.

Enter Reg. No.

Active keys:

Alphanumeric keys, , ,

Action: Enter the 10-digit Alphanumeric Registration number and press Enter to move to next screen

Mileage: Enter the current mileage on the vehicle.

Enter Mileage

Active keys:

Numeric keys, , ,

Action: Enter the numeric current mileage of vehicle and press Enter to move to the next screen

Hose: Enter a valid Hose/Meter number for the dispense.

- This number will be from 1-48, and only valid Hose numbers will be accepted.
- If an undefined hose number is entered, the display will remain on this screen.
- **If there is an on going dispense already in process with the Hose, a new dispense order for that Hose will not be accepted.**

Enter Hose
--

Active keys:

Numeric keys, , ,

Action: Enter a Hose number that has been previously created through the initialization menu and press enter

Product: The keypad will automatically display the Fluid Type associated with the Hose previously selected. There is no data entry for this screen.

Product
(Fluid Type)

Active keys:

There is no active key.
This screen is displayed for user information
It is display during 3 seconds and it goes to quantity

No Action

Quantity: Enter the quantity to be dispensed through the Hose.

- Quantity may be from 0.0-99.9 and 100-999.
- There may be only one digit after the decimal point.
- Dispensed quantities from 100-999 will be in count down mode.
- A quantity of 0.0 will put the RF Meter in a free-dispense mode, the RF Meter will not latch and the user may display fluid as long as the trigger is manually held in the open position. The user must press RESET on the RF Meter to exit this dispense and communicate the dispense order to the Keypad.

Enter Quantity

Active keys:

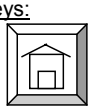
Numeric keys, , ,

Action: Select the quantity to be dispensed and press Enter

Dispense Confirmation: Press Enter to confirm a dispense is desired.

Press enter for
Dispense

Active keys:

 ,

Action: Press the Enter Key to confirm the dispense. Press HOME to cancel order and return to the main screen.

Dispense Order Transaction Ticket: A ticket receipt is printed for every dispense after the completion of the dispense by the RF Meter.

```
TRANSACTION TICKET
DD/MMM/YYYY HH:MI

PRODUCT         FLUID TYPE 1
QUANTITY        2.1 LTS
OPERATOR        JOHN SMITH
RF METER ID        12
WO              1234567890123456
MILEAGE         -
REGISTRATION    -
TYPE            PRE-SET/MANUAL/OUT OF SEQUENCE
LEVEL           999999 LTS
ERROR1          1 (COMMUNICATION ERROR)
ERROR2          3 (LOW BATTERIES)
ERROR3          5 (COUNT ERROR)
```

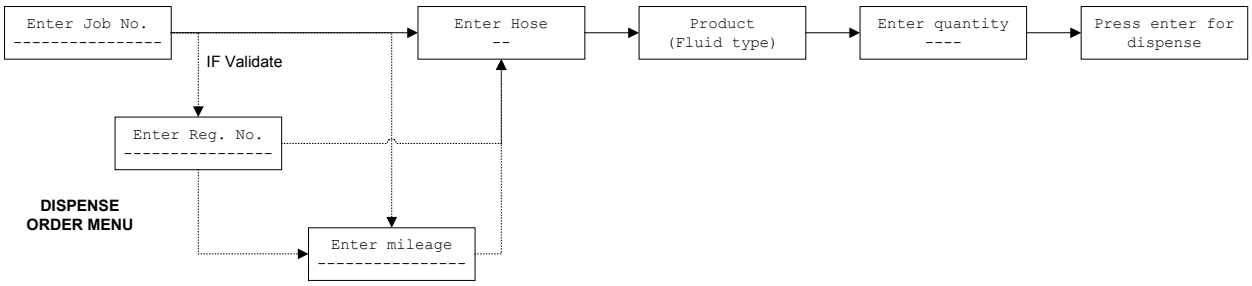
- The Ticket is printed on the integrated printed if it is installed.
- A printer must be installed to retrieve dispense order records.
- **Product:** Fluid dispensed
- **Quantity:** Exact quantity of fluid dispensed by the Hose
- **Operator:** Operator who dispensed the fluid
- **RF Meter ID:** Hose number
- **WO:** Work Order number
- **Mileage:** Mileage of vehicle, only printed if configured to YES
- **Registration:** Registration or License number, only printed if configured to YES
- **Type:** The type of dispense:
    - **Pre-set:** Normal Dispense Process
    - **Manual:** Fluid dispensed while RF Meter was in a manual mode of operation. This is a degraded mode of operation.
    - **Out of Sequence:** Normal Dispense Process, but data not communicated from the Hose to the Keypad immediately after the dispense. Out of Sequence quantity is only communicated through the Supervisor Menu in COM mode. This is a degraded mode of operation.
- **Level:** The remaining amount of fluid in the tank used for the dispense
- **Error1…3:** Error Message for the dispense:
    - **Communication Error:** Difficulty in communications
    - **Low Batteries:** Change the batteries on the RF Meter/hose
    - **Count Error:** RF Meter had a count error, NOT AN APPROVED DISPENSE. (For PTB System ONLY)

Dispense Order Flow Chart:

Operator:
The operator is a user that has only access to the dispense order process. After entering a dispense order, the operator activates the preset RF Meter for a fluid dispense.

Receipt:
On integrate printer if connected or on external printer if connected. If both are connected, the integrated one will be used. If none are connected, no receipt will be printed.

The dispense order process follows an operator PIN Number



Registration and mileage are active only if they are select in the management process.

Keypad
(1 per system)

Meter # *(2 Digits)* ____ ____
(Up to 48 meters/keypad)

Unique Meter Serial # ____ - ____ ____ ____ - ____ ____ ____
(10 Digits)

Hose # ____ ____ ____ ____ ____ ____

Tank # *(1 Digit)* ____
(Up to 8/keypad)
1:Hose

Fluid Type *(16 Digits)* ____ ____ ____ ____ ____ ____ ____ ____
Description
1:Tank ____ ____ ____ ____ ____ ____ ____ ____
(Up to 8/keypad)

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